Number Sense Exam 100, 1/7/2021

(1) $3\frac{1}{2} - 2\frac{1}{6} =$ _____ (mixed number)

(2) $12 \times 22 + 16 \times 22 =$ _____

(3) 40% of $(.4 + \frac{1}{4}) =$ _____

(4) $3.2 \times 2.3 =$ _____ (decimal)

(5) $15 \times 28 =$ _____

(6) $7.5\% =$ _____ (proper fraction)

(7) $31 \times 29 =$ _____

(8) $9 - 12 \times 6 \div 3 =$ _____

(9) $2.5 \times 48 =$ _____

*(10) $1437 + 2019 - 1278 + 231 =$ _____

(11) $123 \times 8 + 3 =$ _____

(12) 17 is what % of 68? _____ %

(13) $3\frac{3}{4} \times 2\frac{2}{3} =$ _____

(14) CCCXXIC= _____ (Arabic Numeral)

(15) MDII + CX = _____ (Arabic Numeral)

(16) Which is larger: $3\frac{1}{6}$ or 3.16? _____

(17) MMLIII + CCXIII = _____ (Arabic Numeral)

(18) $1 + 2 + 3 + 4 + \ldots + 24 + 25 =$ _____

(19) $12^3 =$ _____

*(20) $\sqrt{173468} =$ _____

(21) The sum of three consecutive integers is 63. The middle integer is _____

(22) The sum of the roots of $2x^2 - 4x - 3 = 0$ is ____

(23) $33^2 + 11^2 =$ _____

(24) $\frac{12}{13} - \frac{13}{12} =$ _____

(25) $3663 \div 111 =$ _____

(26) $(41 \times 34 - 14) \div 8$ has a remainder of _____

(27) $\sqrt[3]{3375} =$ _____

(28) Set A has 4 elements, set B has 7 elements, and $A \cap B$ has 3 elements, then $A \cup B$ has ___ elements

(29) The set $\{l, i, n, e, a, r\}$ has ___ 4-elements subsets

*(30) $325 \times 2017 =$ _____

(31) If $3x + 5 = 1$, then $6x - 1 =$ _____

(32) If $3x - 4 = 7 + 2x$, then $x =$ _____

(33) $123 \times 8 + 3$ _____

(34) If $f(x) = 9x^2 + 12x + 4$, then $f(-2) =$ _____

(35) $(24 \times 12 + 2 \times 11) \div 7$ has a remainder of _____

(36) The sum of the roots of $x^2 + x = 20$ is _____

(37) How many positive natural numbers less than or equal to 30 are relatively prime to 30? _____

(38) If $8\frac{1}{3}\%$ sales tax on an item is \$0.18, what is the price of the item before tax? \$ _____

(39) $(3 \times 19 + 20 \times 16) \div 6$ has a remainder of _____

*(40) 20 hours + 30 minutes + 40 seconds
= _____ seconds

(41) The y-intercept of $6x - 2y = 8$ is (x, y). $y =$ ____

(42) $114 \times 411 =$ _____

(43) $7 \times \frac{7}{10} =$ _____ (mixed number)

(44) A circle of radius $1.375''$ is inscribed in a square. The perimeter of the square is _____ in.

(45) The sum of the integral values of x such that $a + |x - 2| \leq 3$ is _____

(46) $45 \times 65 =$ _____

(47) Let $3(\mathrm{i})^4(\mathrm{i})^5 = a\sqrt{b}$. Find $a + b$. _____

(48) An exterior angle of a regular hexagon has a measure of _____ degrees

(49) A regular hexagon has _____ distinct diagonals

*(50) $4^2 \times 3^4 \times 2^5 =$ _____

(51) $53 \times 53 + 50 \times 50 - 3 \times 3 =$ _____

(52) $271 \times 314 =$ _____

(53) $36^2 + 57^2 =$ _____

(54) The number of distinct diagonals of a convex pentagon is _____

(55) The parabola $y = x^2 - 2x + 1$ has a vertex at (h, k). Find h. _____

(56) The simplified coefficient of the x^2y^2 term in the expansion of $(2x + y)^4$ is _____

(57) If $\log_9 x^3 = 1.5$, then $x =$ _____

(58) $2 + 3 + 4 + 5 + \ldots + 24 =$ _____

(59) If $4 \log_9 k = 2$, then $k =$ _____

*(60) $34 \times 45 + 54 \times 43 =$ _____

(61) $\cos(480°) =$ _____

(62) $9^8 \div 7$ has a remainder of _____

(63) $33_6 \times 3_6 =$ _____ 6

(64) The smaller root of $9x^2 - 12x - 5 = 0$ is _____

(65) Let $\dfrac{2 - 3\mathrm{i}}{\mathrm{i}} = a + b\mathrm{i}$. Find $a + b$. _____

(66) How many ways can 3 people be seated in a row of 5 chairs? _____

(67) $\sin(\arccos .6) =$ _____ (decimal)

(68) The sum of the coefficients of $(x + y)^4$ is _____

(69) The sum of the coefficients of $(x + y)^5$ is _____

*(70) $4^4 \times 16^4 \div 16^2 =$ _____

(71) If $\det \begin{bmatrix} -4 & 6 \\ 8 & 4 \end{bmatrix} = 9$, then $x =$ _____ (decimal)

(72) $\displaystyle\int_0^5 (5 - x)\, dx =$ _____

(73) $\displaystyle\int_1^2 x^3\, dx =$ _____

(74) Find $x, 1 \leq x \leq 4$, if $2x + 3 \equiv 3 (\mathrm{mod}\ 6)$. _____

(75) $2x^2 - 4x + 1 \div (x - 2)$ has a remainder of _____

(76) Change 0.31 base 4 to a base 10 fraction. _____

(77) Find x, $0 \leq x \leq 4$, if $16 + x \cong 4 (\mathrm{mod} 5)$. $x =$ ____

(78) The volume of a circular cylinder with height 5 in. and diameter 3 in. is $k\pi$ cu. in. and $k =$ _____

(79) $\displaystyle\int_1^4 x^{(-2)}\, dx =$ _____

*(80) $(3.166\ldots) \div (38) \times (13^3) =$ _____